



INL chemical process engineering researcher Bob Cherry recently taught a course at the University of Calgary addressing energy markets, technologies, and industrial and transportation uses in developing and developed nations.

INL researcher advances collaboration with University of Calgary

by Keith Arterburn, *INL Communications*

Idaho National Laboratory energy researcher Bob Cherry advanced the INL-Alberta energy research relationship with an extended visit to Calgary, Alberta, this summer. He spoke to an energy conference and then taught a six-week energy course at the University of Calgary Institute for Sustainable Energy, Environment and Economics (ISEEE).

A researcher in chemical process engineering, Cherry kicked off his collaborative stay with a presentation to the Global Petroleum Show 2008, hosted in Calgary June 10-12. During a panel discussion on "The Nuclear Solution: An Alternative Heat Source for the Power Industry," he surprised attendees by saying, "Nuclear power works quite well, but not the way we had expected."

"Substituting nuclear energy as the heat source in producing synthetic fuels yields double benefits. It eliminates the carbon dioxide emissions and negative environmental impact, but also makes the carbon available for additional fuel uses," Cherry said.

He further explained that the carbon not emitted to the environment can be made available to become synthetic fuel, but requires energy in that process from other sources such as wind or nuclear. While only being tested at the moment, he emphasized, in two to three decades this technical approach will be realized as a large-scale, reliable source of energy, especially for the chemical industry.

Supported by both program funding and INL's Faculty Staff Exchange program, Cherry taught the summer energy course with Michal Moore, ISEEE Senior Fellow and adjunct professor of economics at the University of Calgary. The class met twice weekly between July 2 and Aug. 14.

Cherry and Moore covered the technical and economic factors in selecting future energy systems. The course discussed energy markets and technologies ranging from traditional hydrocarbon-based fuels through renewable resources and nuclear technologies. It also explored how the various forms of electricity generation and energy supply for industrial and transportation uses can complement or compete with each other in both developing and developed nations.

Prior to the summer energy course at the University of Calgary, INL and Alberta organizations had begun expanding their energy research relationships more than two years ago. During that time, they have had informational exchanges, a nuclear energy and water workshop at INL in October 2007, and a series of other collaborative efforts.

Alberta has world-scale energy resources and is second only to Saudi Arabia in oil reserves when oil sand reserves are considered. It is the top exporter of oil to the U.S., providing 11% of U.S. crude oil imports and 60% of gas imports.

The future of U.S. and Canadian energy security depends on productive, technological collaborations that yield more reliable energy sources from within North America, while maintaining environmentally friendly approaches to their development. Alberta research priorities are well-focused and organized. As in the U.S., they include bitumen upgrading, clean carbon and coal, improved recovery, carbon dioxide management, alternative and renewable energy, and water management.



INL's Bob Cherry team-taught an energy course with Michal Moore, ISEEE Senior Fellow and adjunct professor of economics at the University of Calgary.

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